



UNITED STATES DEPARTMENT OF COMMERCE
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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/327,113 10/21/94 RONZANI

P KPN9309ACA

EXAMINER

WU, X

ART UNIT

PAPER NUMBER

5

26M2/0626

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HAMILTON BROOK SMITH AND REYNOLDS
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LEXINGTON MA 02173-4799

2609

DATE MAILED:

06/26/95

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), _____ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- ☐ Notice of References Cited by Examiner, PTO-892.
- ☒ Notice of Draftsman's Patent Drawing Review, PTO-948.
- ☒ Notice of Art Cited by Applicant, PTO-1449.
- ☐ Notice of Informal Patent Application, PTO-152.
- ☐ Information on How to Effect Drawing Changes, PTO-1474.
- ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 1-11 are pending in the application.

Of the above, claims _____ are withdrawn from consideration.

2. ☐ Claims _____ have been cancelled.

3. ☐ Claims _____ are allowed.

4. ☒ Claims 1-11 are rejected.

5. ☐ Claims _____ are objected to.

6. ☐ Claims _____ are subject to restriction or election requirement.

7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.

13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

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1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 4 are rejected under 35 U.S.C. § 102(b) as being anticipated by Kamaya et al. (US PAT NO 5,106,179).

As to claim 1, Kamaya discloses a head-mounted projection display apparatus comprising: a display panel (14) to generate an image, an optic system (15, 16) to receive the generated image and to extend the optical path of the generated image by reflection of the image within the optic system, the optic system transmitting a projection image, and a viewing surface (7) to receive the projection image from the optic system, the image on the viewing surface being viewable by a user.

As to claim 4, Kamaya discloses that the image is processed by reflection with the optic system (15, 16).

3. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102

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of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

4. Claim 2 is rejected under 35 U.S.C. § 103 as being unpatentable over Kamaya et al.

As to claim 2, Kamaya does not specifically disclose the LCD display is an active matrix type LCD. However, the active matrix type LCD is well known in the art. It is desirable to use active matrix type LCD because it can provide a high quality and very sharp image to a user.

5. Claims 3 and 5-11 are rejected under 35 U.S.C. § 103 as being unpatentable over Kamaya et al in view of Berman (US PAT NO. 5,050,966).

As to claims 3 and 5-8, Kamaya does not specifically disclose the optic system comprising a polarizer, a partially-transmissive concave mirror and a cholesteric liquid crystal mirror and a cholesteric liquid crystal element. However, such elements in a optical system for a helmet display is well known in the art such as taught by Berman. As shown in Fig. 2A, Berman discloses a polarizer (30) to polarize the generated image in a

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first orientation to a second orientation, a partially-transmissive concave mirror (42) having a light transmissive first surface to transmit the generated image and a reflective surface to alter the polarization of light incident on the first surface and a cholesteric liquid crystal element (44) having a first polarization back toward the second surface of the mirror and to transmit light having a second polarization. It would have been obvious to one of ordinary skill in the art to have modified Kamaya the optical system with the features of the optical system of Berman, so that the viewer can view the image projected by LCD and the image incident from outside.

As to claim 9, Berman discloses an optical combiner (30) which combines the projection image with a viewing image.

As to claim 10, Berman discloses that the viewing image is a direct view image.

As the claim 11, Berman discloses that the optical combiner is a partially transmissive mirror.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiao Wu whose telephone number is (703) 305-4721. The examiner can normally be reached on Monday to Friday from 8:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on

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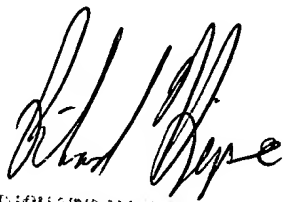
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(703) 305-4709. The fax phone number for this Group is (703)
305-9508.

Any inquiry of a general nature or relating to the status of this
application or proceeding should be directed to the Group
receptionist whose telephone number is (703) 305-4700.

xw

June 22, 1995


RICHARD MCPHEE
PRIMARY EXAMINER
GROUP 1238